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ABSTRACT

A systematic look at four large staff development efforts, their staff development activities, their commonalities and differences, and their strengths and weakness focuses on the following programs: The New Teachers Workshop; Staff Development Program in Mathematics, Science and Computer Science; The Mentor Teacher Internship Program; and the Mathematics and Science Relicensing Project. The study describes the population served, selection criteria, the particpants' reactions to the training, the impact of the training on participants' performance in the classroom; the activities/practices that were successful; and the activities/practices that were not successful. Evaluation instruments consisted of an examination of existing program documentation, interviews of program participants and their supervisors, interviews with central program administration, analyses of participants' surveys, analyses of supervisors' surveys, and analyses of staff development reaction forms. Results showed that although these four programs addressed different teachers' needs in a variety of ways, the most successful activities/practices were those that delivered training in a timely fashion; matched training to the actual needs of teachers; scheduled staff development activities at convenient times in convenient locations; emphasized hands-on practical activities, techniques, and materials; provided additional avenues for learning beyond the training activities; provided incentives for participating teachers; piloted new staff development efforts on a small scale; and provided time for participants to share information and experience. Recommendations for strengthening each program are also offered. (JAM)

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A Potpourri of Staff
Development Practices:
What Works/What Doesn't

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I. Introduction

Need for the Study

Every year staff development activities are provided by the N.Y.C. Board of Education, by district staff, and by local school administrators and teachers, depending on the nature and scope of the need. These programs are implemented to: train and retain new teachers; inform teachers of new curriculum and the use of appropriate teaching strategies; instruct them in the use of new technology; reinforce learned skills; develop new skills; and share ideas and strategies. Furthermore, out-of-license teachers require instruction in the areas in which they are teaching in order to be licensed in these areas.

There has never been a study that systematically looks at different staff development activities and identifies their commonalities and differences, their strengths and weaknesses. This study will consider four large staff development programs: The New Teachers Workshop; Staff Development Program in Mathematics, Science and Computer Science; The Mentor Teacher Internship Program; and the Mathematics and Science Relicensing Project. The study describes: the population(s) served; selection criteria; the participants' reactions to the training; the training impact on the participants' performance in the classroom; the activities/practices which were successful; and the activities/practices which were not successful.

Evaluation Procedures

In general, the Office of Research, Evaluation, and Assessment/Instructional Support Evaluation Unit of the New York City Board of Education used multiple procedures to answer implementation and outcome questions. These procedures included:

- examination of existing program documentation;
- interviews of program participants and their supervisors;
- interviews with central program administration;
- analyses of participants' surveys;
- analyses of supervisors' surveys;
- analyses of staff development reaction forms;

II. Program Descriptions

Mentor Teacher Internship Program

Background

In an effort to improve the teaching effectiveness of first year provisional teachers and increase their retention rate, the Board of Education and the United Federation of Teachers (U.F.T.) jointly applied for and received a grant from the New York State Education Department, Office of Demonstration Programs. The purpose of the grant was to fund a pilot Mentor Teacher Internship Program (M.T.I.P.) for the 1986-87 school year which would provide first-year teachers with an experienced mentor teacher in the contest of a supportive, non-evaluative peer relationship. Experience in other states indicates that such a relationship is effective in significantly improving teacher effectiveness and in reversing low retention rates. The program placed strong emphasis on staff development of both mentors and interns.

Forty-two mentors and 72 interns participated in the Mentor Teacher Internship during the 1986-87 school year. They represented 28 elementary schools in 13 Community School Districts (C.S.D.s 1, 2, 5, 6, 8, 10, 15, 16, 17, 19, 23, 27, and 28) in the boroughs of Manhattan, Brooklyn, Queens and the Bronx. District Superintendents brought the program into their school districts at their discretion: in some cases they informed the principals of eligible schools that the program was being assigned to them; in other cases they allowed principals to

decide if they wanted the program. All of the city's 390 Comprehensive Assessment Report (C.A.R.)-designated schools were eligible for the M.T.I.P. Based on student performance on various tests administered by New York State, attendance figures and drop-out rates, these are schools which have been identified by the State Education Department as most in need of help. Eligible teachers applied to be mentors and were selected by a district-wide committee which included supervisory and administrative personnel, teachers and chapter chairpersons. First-year teachers in schools selected for participation who met the mandated criteria for intern selection "automatically" became interns.

Program Objectives

Objectives established to further the project goals included:

(1) Interns will have made significant performance improvement in the range, depth and variety of knowledge for teaching in their subject area.

(2) Interns will demonstrate a positive view of their own competence and potential, as well as satisfaction with work skills useful for career development.

(3) As a result of becoming more competent and effective through their participation in the Mentor-Intern Program, barriers to teachers retention will be decreased.

(4) Mentor teachers will demonstrate effective skills developed by process of training and practical application.

NEW TEACHERS WORKSHOPS

Objectives

The New Teachers Workshops were mandated for all teachers new to the system and for returning teachers who had been away from the system for more than five years if untenured and for ten years if tenured. During the 1986-87 school year, the New York City Board of Education and the United Federation of Teachers collaborated on the New Teachers Workshops in an effort to improve classroom teaching and develop a positive approach towards orientation of new teachers and re-orientation of returning teachers.

New Teachers and returning teachers were required to participate in ten days (63 hours) of staff development, coordinated by the Division of Curriculum and Instruction (C. and I.) of the New York City Board of Education. Training models were based on current research and staff development programs in use nationally, with the focus on subject areas as well as levels of learning abilities.

The program was funded by the New York City Board of Education with a total budget of $1.4 million for all three cycles. Cycle I of the New Teachers Workshops took place during day and evening sessions in July and August, 1986.

A total of 45 teacher-trainers and 632 new and returning teachers participated in the July and August sessions. Two sites were utilized: special education classes met at Murray Bergtraum H.S. while training for all other groups was held at Norman Thomas H.S. including: high school, junior high school,

elementary school and early childhood teachers.

Cycle II took place on ten intermittent Saturday and Sunday sessions held between September 20 and March 21. Participating teachers had the option of attending a session on either Saturday or Sunday at Norman Thomas High School from 8:40 A.M. to 3:00 P.M. The last three sessions consisted of a variety of workshops from which teachers could choose according to their own needs. Alternately, teachers could attend specially designated conferences in lieu of the three workshop sessions. Teachers who had participated in the seven summer sessions needed to attend three workshop sessions or conferences to complete their training requirements.

Teacher participants represented all New York city districts, subjects, and levels. Eighty-six percent were teaching with either temporary certificates or new licenses. Returning teachers without tenure made up 12 percent of this group; the remaining two percent were tenured teachers. Eighteen percent of the participants were bilingual education teachers.

An additional cycle (Cycle III) was held in the spring of 1987, but was not evaluated by O.E.A. In total, 2,714 new and returning teachers participated in all three cycles and conferences.

GOALS

The program was designed to help new teacher gain proficiency in classroom management, teaching, and the acquisition of knowledge about the school district support systems. More specifically, the goals for participants included:

- understanding the basic of elements of effective instruction;
- organizing and managing the classroom;
- preparing for the first day and first week of class;
- using curriculum materials to guide teacher planning throughout the year;
- establishing relationships with district and central personnel who can provide on-going professional support;
- reducing new teacher anxiety.

Cycle I workshops were to provide new teachers with the advantage of training prior to the beginning of the school year. An equivalent of seven training days were made available in July and August, in two separate sub-cycles. New Teachers were expected to complete an additional three days of training during the 1986-87 school year. For the purpose of this study, the two summer sub-cycles will be treated as one, Cycle I, of the New Teachers Workshop series.

POPULATION SERVED

The ten-day mandated training program was intended for all new teachers and specified returning teachers who were to begin teaching after September 1, 1986. Those required to participate included: newly assigned teachers with a Temporary Per Diem (T.P.D.) certificate and newly licensed and appointed teachers who had not worked previously in the New York City public school; tenured teachers returning after an absence of ten years or more; untenured teachers returning after an absence of five years or more; and any teacher who had worked for less than one semester.

Of the 632 new and returning teachers participating in the Cycle I program, 230 attended elementary and junior high school special education workshops (36 percent), and 68 attended high school special education workshops (11 percent). For general education teachers, 87 enrolled in early childhood groups (14 percent), and 147 in grades three through six groups (23 percent). For the general education high school and junior high school new teachers, 19 participated in communication arts (three percent), 25 in mathematics (four percent), 12 in social studies (two percent), 18 in science (three percent), four in foreign languages (one percent), 12 in occupational education (two percent), three in physical education, two * in health education, and five * in high school English as a Second Lnguage workshops (one percent).

For new teachers already assigned to schools, all New York city school districts were represented. About 25 percent of the new and returning teachers had not been placed in a school by the last day of both July and August sections of Cycle I.

O.E.A. surveyed 375 teacher participants in Cycle II. Forty percent were teaching in elementary school mainstream classes, 23 percent in special education, elementary through junior high school, 12 percent in high school, six percent in trade school and another six percent in special education, high school. The remaining teachers taught early childhood (two percent), special education, bilingual (three percent), bilingual, elementary and

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*These numbers represent less than one percent.

junior high (four percent).

Mathematics and Science Relicensing Project

Background

The Mathematics and Science Relicensing Project provides out-of-license mathematics and science teachers the opportunity to complete the required coursework needed to qualify for the appropriate mathematics or science licensing examination. Its objective is to increase the number of licensed mathematics and science teachers by offering college courses in these areas. The goal of the program is to improve instruction in these areas and thereby improve student achievement accordingly. Five years after its inception, the program has provided more than 1,200 teachers with university-credited mathematics and science courses, and over 150 of these teachers have been relicensed.

Coordinated by the Board of Education's Division of Curriculum and Instruction and funded through a grant from the Comptroller of the City of New York, the 1986-87 Mathematics and Science Relicensing Program achieved an active enrollment of 550 teachers -- 286 in math, 264 in science. The project's aims are to qualify teachers for, and encourage them to apply and pass, the appropriate licensing examinations and to have licensed teachers use the experience to enhance instruction of their subject.*

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*Requirement for licensure are: 18 credits for the junior high school mathematics; 24 credits for the high school mathematics; and 36 credits for the science license.

The program represents collaborative efforts among New York City's Board of Education, the City of New York Comptroller's Office, and 12 local area colleges and universities. Participating colleges include Baruch College, Bronx Community College, Brooklyn College, City College, Hofstra University, Kingsborough Community College, LaGuardia Community College, Lehman College, Manhattan College, New York Technical College, Queensborough Community College, and St. John's University. Although an attempt was made to include a Westchester County college, no participants (including Bronx residents) chose to enroll; classes at that college were subsequently cancelled. Participating teachers selected from 38 mathematics and 28 science course offerings.

POPULATION SERVED

All New York City public school teachers who are not licensed in mathematics or science or do not have sufficient credits to meet licensing requirements are eligible for the program. Preference is given to teachers at the junior high school and high school levels who are teaching either mathematics or science out of license. Elementary school teachers are also invited to participate; however, it should be noted that there are no licensing examinations for mathematics or science at the elementary school level. Women and minorities were especially encouraged to take advantage of the program due to their underrepresentation in these fields. Teachers applied to the program by completing application forms available at their schools. Applications, reviewed and approved by the Division of

curriculum and instruction, were forwarded to the Office of Educational Assessment (O.E.A.), where database files are maintained on participants to keep track of their progress in the program. During 1986-87, 550 teachers actively participated in the program. Generated enrollment was 286 for the Mathematics component and 264 for the Science component.

PROGRAM OBJECTIVES

Program objectives in the 1986-87 for the Mathematics and Science Relicensing Project were as follows:

- Provide out-of-license teachers with coursework needed to qualify for a licensing examination in mathematics or science.
- Attract female and minority participation in the program to increase their representation among mathematics and science teachers.
- Encourage program participants to apply for and pass the appropriate licensing examination (s) by providing exam preparation sessions upon attainment of eligibility status -- 18 credits for the junior high school mathematics license and 24 credits for the high school mathematics license (not offered for science license).

Staff Development Program in Mathematics, Science, and Computer Science

PROGRAM BACKGROUND

The Staff Development Program in Mathematics, Science, and Computer Science was initiated in summer, 1982, by the Division of Curriculum and Instruction (C. and I.) with funds provided by the New York City Council. Its overall goal is to improve the quality of mathematics, science, and computer science education in New York City's public schools. To this end, it provides

staff training and curriculum development support to teachers, staff developers, supervisors, and administrators at all grade levels. Assistance has been given in many areas -- e.g., using effective instructional and management techniques, understanding and implementing new curriculum mandates, developing computer literacy, and using computers as educational tools.

Courses and workshops have been offered at a variety of sites, including the central Board of Education, district offices, schools, satellite centers, and in collaboration with colleges and universities throughout the metropolitan area, sometimes for in-service or college credit.

PROGRAM GOALS

Although C. and I.'s Mathematics and Science Units and the Office of Technology * each designed and administered discrete program activities, they had several common goals. These were:

- to assist teachers in upgrading their subject area knowledge and instructional skills;
- to offer training in understanding and teaching new curricula;
- to help administrators and supervisors in providing management and instructional support to other school staff; and
- to provide undated curriculum materials.

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*Formerly part of the Division of C. and I., the office of Technology became part of the Division of Computer Information Services in September, 1987; however, the name Office of Technology will be used throughout this report.

III. OUTCOMES

MENTOR TEACHER INTERNSHIP PROGRAM

FINDINGS

By 30, June 1987, the Mentor Teacher Internship Program had been generally effective in meeting its stated objectives. Among the major evaluation findings were the following:

Staff Development

- In general, the mentors' and interns' evaluation of the training they received was very high. They consistently expressed a preference for more hands-on training and less "theory."

- The three most frequent activities of mentors and interns as reported in their logs were conferencing, preparing/planning, and viewing/visiting. While the interns had identified watching other teachers teach as the "most helpful" M.T.I.P. activity, it is not what they did most frequently.

- The topics that most often formed the content of the mentors' and interns' activities were program aspects, classroom management, reading, procedural items, math, and other communications arts -- with "seasonal" fluctuations for such topics as student performance, report cards, and testing/ teacher-made test construction.

- Reading was consistently the most important topic compared to other school subjects such as math, science, other communications arts and foreign language.

- Classroom management declined in importance as the focus of activity over the course of the school year, indicating that this was a skill which interns mastered.

- Program aspect remained a consistent focus of activity, averaging 28 percent of the mentors' time and 18 percent of the interns' time over the course of the school year.

Expectations

- Initial surveys of mentors and interns at the outset of the program indicated high expectations. More than 70 percent of the interns said they expected the program to help them become better teachers, learn new techniques, and gain valuable knowledge about their profession.

- Principals -- despite reporting initial negative reactions to the criteria used for intern selection -- acknowledged their expectation that the program would have a positive effect on mentors, interns and their students.

- The most controversial issue to emerge from the M.T.I.P concerned the time participants would spend out of the classroom. However, most of the interns and mentors said they did not regard their absence from the classroom as necessarily problematic as long as they had competent coverage.

- The principals' summing up of the r initial sentiments and their suggestions or improving the M.T.I.P centered on their view that principals should be included in the planning as well as the implement tion of the program.

Final Impressions

- The mentors rated the program most helpful in the development of such skills and self-perceptions as "sharing experiences about stress and coping mechanisms," "being able to diagnose interns' needs," "providing advice," "developing self-confidence as a teacher," "becoming sensitive to different teaching styles," "feeling better about being a teacher," and "perceiving that your work is valued by others." More than 90 percent of these mentors said that the M.T.I.P. responded to their "needs for support and professional growth" in the mentor role.

- The interns rated the program as having been most helpful in the areas of "development of self-confidence as a teacher," "f eling comfortable in exchanging ideas w th people with whom you work," "use of mana ement

skills which make good use of time and other resources, minimize interruption, and keep students engaged," "feeling comfortable in approaching and working with other teachers," "knowing where to turn in the school when you need to resolve problems," and "perceiving that teaching is work through which you can express yourself."

- These interns rated their progress highest in terms of "I have established a good rapport with my students, as individuals and as a group" and "I know where to turn in the school (s) when I need to resolve problems."

- The M.T.I.P had an extraordinarily positive impact on mentors' job satisfaction.

- Nearly 80 percent of the interns who responded to the final Intern Survey said they planned to continue teaching in their current assignment during 1987-88.

Student Performance

- In comparing the reading and mathematics achievement of a sample of M.T.I.P. interns' students with the achievement of a sample of students of new teachers who were not participants in the program, it was found that the interns' students showed scores of two and one N.C.E.s -- in reading and mathematics respectively -- higher than the scores of other new teachers' students.

RECOMMENDATIONS

The following recommendations are based on suggestions put forward by the participants in the M.T.I.P. and others associated with it, inferences drawn from their comments on and criticisms of the program, and observations made during site visits to selected schools.

- Implement a substitute recruitment program, linked to the M.T.I.P. in funding and organization, that would guarantee competent, reliable coverage in participating schools, rather than leave coverage to each local school.

- District Superintendents should meet with and explain the program to principals, who in turn should take responsibility for introducing it to other teaching staff, chapter chairpersons, parents and students. In particular, teachers who substitute for mentors and interns should be made an integral part of the school and the mentoring team and included in joint lessons planning, etc.

- Mentor-intern confidentiality should be retained. (There was no breach of confidentiality during the first year of the program.)

- Inform principals, mentors and interns about the program before the start of the school year.

- Include Temporary Per Diem (T.P.D.) teachers among the new teachers eligible to be interns. Exempt experienced teachers new to the New York City public school system but not to teaching.

- Provide mentors with additional hands-on, role playing-based training in mentoring as well as instructional staff development in subject areas.

NEW TEACHERS WORKSHOP

FINDINGS

In general, teachers found the New Teachers Workshop to be extremely useful.

A summary of the findings for Cycles I and II and for the follow-up study includes:

- Although teachers from all levels stated they had benefitted from the project, elementary and special education teachers expressed the most enthusiasm about the training.

- Teachers found training related to curriculum, classroom management, and lesson design especially useful.

- Less useful areas of training, according to teacher participants, included preparation for non-teaching assignments, and other

administrative tasks (attendance, records, etc,)

- Workshops (last three sessions) were most favorably received because of the large variety and flexibility of scheduling.

- Team teaching was an especially effective technique for instruction.

- Twenty-five percent of teachers participating in the Summer Cycle (Cycle I) were not yet assigned to schools, causing these individuals great anxiety.

- Cycle II teachers were unhappy with weekend training. they thought that the local districts' weekly after-school training session, in addition to the New Teacher Workshop, placed too much of a time burden on beginning teachers.

- Teacher trainers were well prepared, enthusiastic, and open to helping and advising new and returning teachers. Trainers overwhelmingly agreed that the training sessions were valuable.

- The follow-up survey respondents found the most helpful aspects of the project to be the materials distributed, and lesson designs, classroom management discussions, and meeting and talking with other new and returning teachers.

- Ways in which the New Teacher Workshops could have been more helpful for respondents included offering differing training to new and returning teachers, providing more information about disadvantaged students, and allowing more time for describing teachers' demonstration lessons and for describing teachers' administrative duties.

RECOMMENDATIONS

Based on these findings, the following recommendations are offered by the Office of Education Assessment:

- Continue to provide training for new general education and special education teachers.

- Continue to support the distribution of

curriculum materials and to provide training in lessons design and classroom management.

- Improve training in teachers' administrative responsibilities and non-teaching functions and in reducing their teaching anxiety.

- continue to offer the wide variety of elective workshops (Last three sessions) with scheduling flexibility.

MATHEMATICS AND SCIENCE RELICENSING PROGRAM

FINDINGS

During 1986-87, the Mathematics and Science Relicensing Program was effective in meeting all its stated objectives. Among the major evaluation findings were the following:

Teachers Served

- The program continued to successfully achieve its minority participation goal. Nearly half (42 percent) of program participants belonged to a minority ethnic group, and 6 percent were women.*

- Seventy-one (13 percent) of the program participants became eligible to take licensing examination. Participants attending examination preparation sessions described the classes as highly useful. Teachers found working with old licensing examination, instructors' notes, and practice in problem solving to be the most helpful exercises of the sessions. Twenty-five program participates applied for and took licensing examinations in mathematics and science.

Participants' Perceptions

- Most newly completed program participants indicated that they planned to take mathematics or science licensing examinations and credited the program with being

*Minority ethnic representation and female representation for the general teacher population were 27 percent and 76 percent, respectively, as of October, 1986

instrumental to pursuing this goal.

- Teachers currently enrolled in the program praised its efforts and recommended that colleagues take advantage of the opportunity. The desire to change teaching assignments and interest in subject area content were cited as primary reasons for enrolling in the program.

- Teachers were generally pleased with the program design, citing increased knowledge, licensing examination preparation, and tuition-free courses as the most beneficial aspects of the program.

- Most teachers were not aware of any participant support services available at their college. Where tutoring or counseling services were identified, very few participants used them.

- Teachers suggested program improvements that would broaden the variety of course selections and assist teachers in sequencing their coursework.

- Program dropouts were likely to cite personal factors as reasons for withdrawing from the program, whereas course dropouts had a tendency to blame course loads and biases in program design as reasons for dropping out.

- Program dropouts, in general, reported the need to upgrade student support services in the areas of tutoring and guidance in course sequencing. Expansion of course offerings and more specific course descriptions were also recommended improvements for the program.

College Coordinators

- College coordinators were pleased with the modified application and registration process implemented by the Division of Curriculum and Instruction. They were relieved of the task of screening out participants and able to process incoming teachers more efficiently.

- Coordinators maintained an effective level of communication with personnel at the central offices of the Board of Education who were available to assist them with any questions

and/or problems that arose during the program.

- Coordinators designed program curriculums to consist of core content areas supplemented with rotating elective courses. Coordinators believed teachers entered the program adequately prepared to handle the coursework requirements.

College Instructors

- College instructors advocated that program participants follow a prescribed sequence of courses to succeed best in their program.

- Most instructors volunteered tutoring but reported that few participants took advantage of the service.

- Instructors recommended expanding course selections and adding weekend classes to enhance teacher enrollment in the program.

Passing Rates

- The passing rates of relicensing program participants were similar to the general population's rates for both mathematics and science examination -- 74 to 73 percent and 67 to 65 percent, respectively.

RECOMMENDATIONS

On the basis of these findings and other information presented in this report, the following recommendations are offered:

- Expand the variety of program course selections.

- Re-establish classes in Staten Island to serve teachers in that area.

- Provide better dissemination of information (at the college level) concerning student services in tutoring and counseling specific to relicensing.

- Strengthen support services to teachers in their initial placement and sequencing of program courses.

- Make every effort to have new teachers

assigned to schools and grades before summer training begins.

- Provide as much training as possible before beginning teacher duties.

- Consider the development of a teacher-training cadre whose major duties would be preparing new or returning teachers for the classroom.

- Offer more demonstration lessons as part of the training.

STAFF DEVELOPMENT PROGRAM IN MATHEMATICS, SCIENCE, AND COMPUTER SCIENCE

FINDINGS

The Staff Development Program in Mathematics, Science, and Computer Science was generally successful in meeting its stated objectives. Among the major evaluation findings were the following:

- Interviews with a sample of district mathematics coordinators revealed considerable diversity with respect to their staff development needs, as well as their resources and strategies for meeting them. Reasons for selecting centralized option included the following: limited availability of time and other district staff development needs; difficulty in getting substitutes; insufficient personnel in the district with expertise in mathematics; and a preference for the uniformity of training that could be provided by the central Board.

- Coordinators preferring locally based training indicated that they did so for the following reasons: the typically poor turnout in the summer and the opportunity to reach more staff during the school year; the chance to tailor training to meet practical district and staff needs; district personnel with a strong background in mathematics and considerable staff development experience; the preference for providing training throughout the school year; and the ability to schedule workshops at convenient sites and times.

- Questionnaire responses from participants in a sample of districts indicated that trainees of both centrally and locally based staff development activities rated the quality and usefulness of the training they received positively.

- Staff development in mathematics for high school personnel during the 1986-87 school year consisted of grant awards to 15 schools to develop customized training projects and regional training at satellite centers located in three boroughs. Close to 200 high school personnel were served by these program. Questionnaire responses indicated that participants rated these training experiences positively and anticipated that they would be useful in carrying out their instructional responsibilities.

- Reasons cited by science coordinators for preferring central or local training were similar to those expressed by mathematics coordinators. An additional argument made in favor of the central training was that it familiarized teachers with a new course of study during the summer, prior to the school year in which they were expected to teach it. On the other hand, local training afforded districts the opportunity to exercise greater control and support, such as enforcing turnkey requirements and helping teachers in schools without science laboratories to conduct experiments in other ways

- Through its borough Technical Assistance Centers (TACs), the Office of Technology offered a wide variety of staff development courses for district and school staff in the use of micro-computers in education, including subject area instruction, programming, and tool applications. The almost 250 courses given between summer, 1986 and spring, 1987 included in-service courses and open university (non-credit) courses. Close to 3,000 community school district and high school staff participated. At the conclusion of course sessions, reaction forms focusing on the quality and appropriateness of the instruction were distributed. Participants gave an overwhelmingly positive assessment of both the open university and in-service courses.

- Other computer-related staff development activities included a series of workshops, offered in collaboration with C. and I., focusing on the use of software to present and manipulate information in science and social studies for elementary and intermediate/junior high school personnel, and training for high school staff in the use of newly developed curriculum guides and teacher-created software. More than 7,000 people attended these activities.

RECOMMENDATIONS

Based on these findings, the following recommendations are aimed at enhancing the efficiency of the program;

- Both central and local options would continued to be provided in view of districts' diverse training needs and resources; however, these options should not be mutually exclusive, since even within the same district there are wide-ranging training needs, some of which can best met centrally and others which can best be met locally.

- Some central training activities should be available during the school year at readily accessible sites in each borough, both during and after school.

- Each district's total staff development needs and resources should be more clearly assessed in collaboration with C. and I. before training options are selected and budgeted. In this way, districts would be less likely to overextend themselves, and C. and I. would be better able to give them the kind of assistance they need most.

- Teachers serving as staff developers of local training should be given more time to prepare appropriate activities (e.g., via release time, payment for after-school planning) and should receive the instructional materials they are expected to use in time to become thoroughly familiar with them.

- In order to promote more effective program management and evaluation, a systematic method should be developed by program staff for collecting valid and reliable information

regarding the nature of the district training provided and the extent to which trainees participate in both central and local activities. This should include, at a minimum, the topics covered, the dates of training, an the number of training hours individuals attended.

- Other major factors that are likely to affect the impact of this staff development program on classroom instruction (e.g., participants' background and prior experience, their involvement in other related training activities, the extent of district and school support, the availability of materials and equipment) need to be identified, and this information collected in ways that can be correlated with teaching or supervisory performance so that training can be tailored to specific needs.

- To ensure that staff development promotes improved classroom practices, strategies should be developed for documenting the extent to which trainees actually use the concepts and strategies presented in training sessions.

- Computer-related instructional materials should continue to be developed, and training in their use provided to school staff of all grade levels.

IV. CONCLUSIONS

Results show that although these four programs addressed different teachers' needs in a variety of ways, the most successful activities/practices were those that:

- deliver training in a timely fashion in order to implement curriculum changes effectively and training that involves follow up and continuing support when appropriate --i.e., before the start of the new curriculum or funded program;
- match the training to the actual needs of the teachers, taking into account their backgrounds, skills and needs of their students;
- schedule staff development activities at convenient times and in convenient locations;
- emphasize hands-on activities, practical techniques, and materials that can be used in the classroom;
- provide additional opportunities for learning beyond the usual training activities --i.e., videotapes of master teachers at work;
- provide incentives for participating teachers --i.e., additional pay, credits toward a degree or license, compensatory times for program participants, etc.;
- pilot new staff development efforts on a small scale; and
- provide time for participants to share information and experience.

Specifically for new teachers:

- provide orientation/preservice before the school year starts. Coordinate and limit any central and local school-year training;
- provide beginning teachers with on-going support through pairing them with experienced teachers and,
- provide time-out from teaching responsibilities for observing and visiting

other teachers.

Specifically for experienced teachers:

- provide opportunities for professional growth; and
- provide the opportunity to act as trainers for new or less experienced teachers; and,